


Communicable Diseases

Chapter 24 Lesson 2

Preventing
Communicable Diseases

Terms to be familiar with...

- Immune system – a network of cells, tissues, organs, and chemicals that fights off pathogens.
- Inflammatory response – a reaction to tissue damage caused by injury or infection.
- Immunity – the state of being protected against a particular disease.



Physical and Chemical Barriers

The Body's 1st Line of Defense

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- The following elements work together as your body's 1st line of defense to prevent pathogens from entering and causing disease.



Physical and Chemical Barriers

The Body's 1st Line of Defense



● Skin

- The first line of defense against many pathogens. Few pathogens can pass through the tough layer of dead skin cells that surrounds the body.

● Tears and Saliva

- Contain enzymes that destroy or disable many pathogens

● Gastric Juices

- Found in the stomach, it destroys many pathogens that enter the body through the nose and mouth.

● Mucous Membranes

- They line many parts of the body, including your mouth, nose, and bronchial tubes. Cells in these membrane produce mucus. The mucus then carries the trapped pathogens to other areas of the body for disposal.

● Cilia

- The hair-like projections that line parts of the respiratory system, sweep mucus and pathogens to the throat, where they can be swallowed or coughed out.

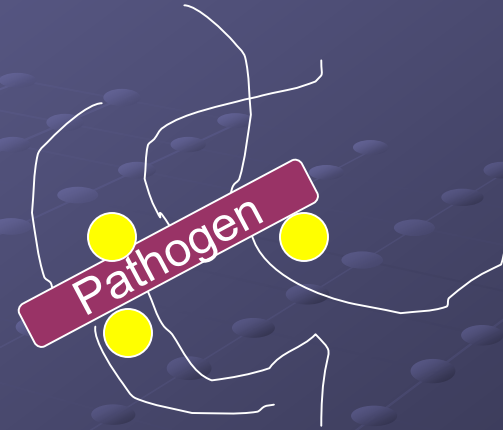


The Immune Response

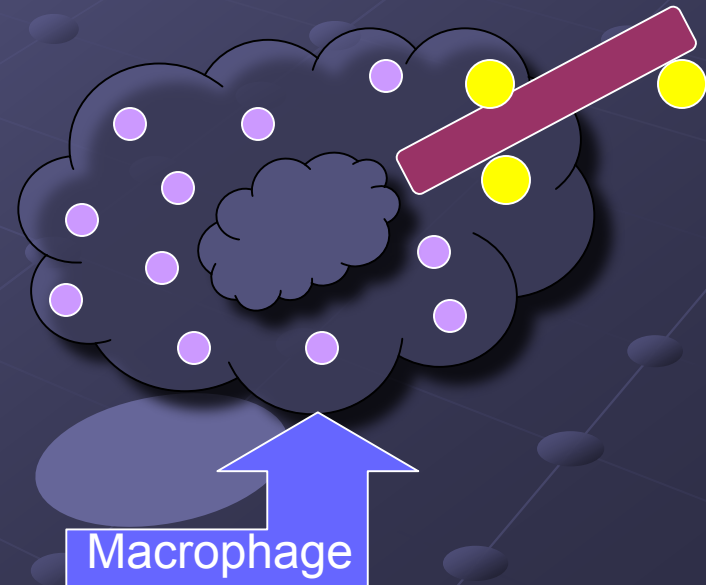
- The immune response is a complex interaction between your body and an invading pathogen. It can be broken down into eight distinct stages.

The Immune Response

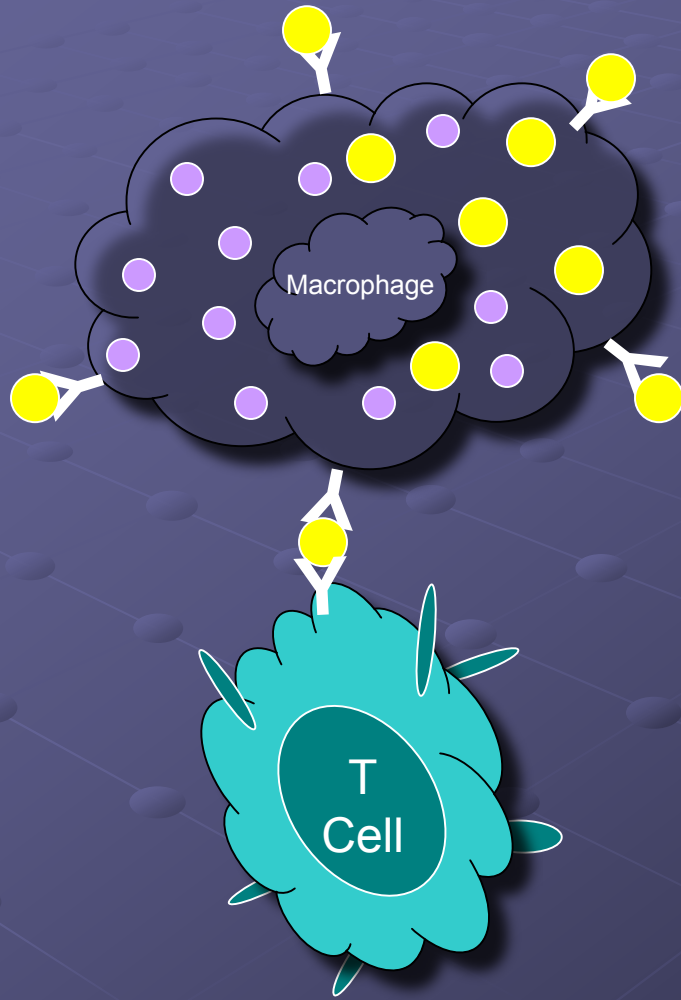
1. Pathogens invade the body.



2. Macrophages engulf the pathogen.



The Immune Response



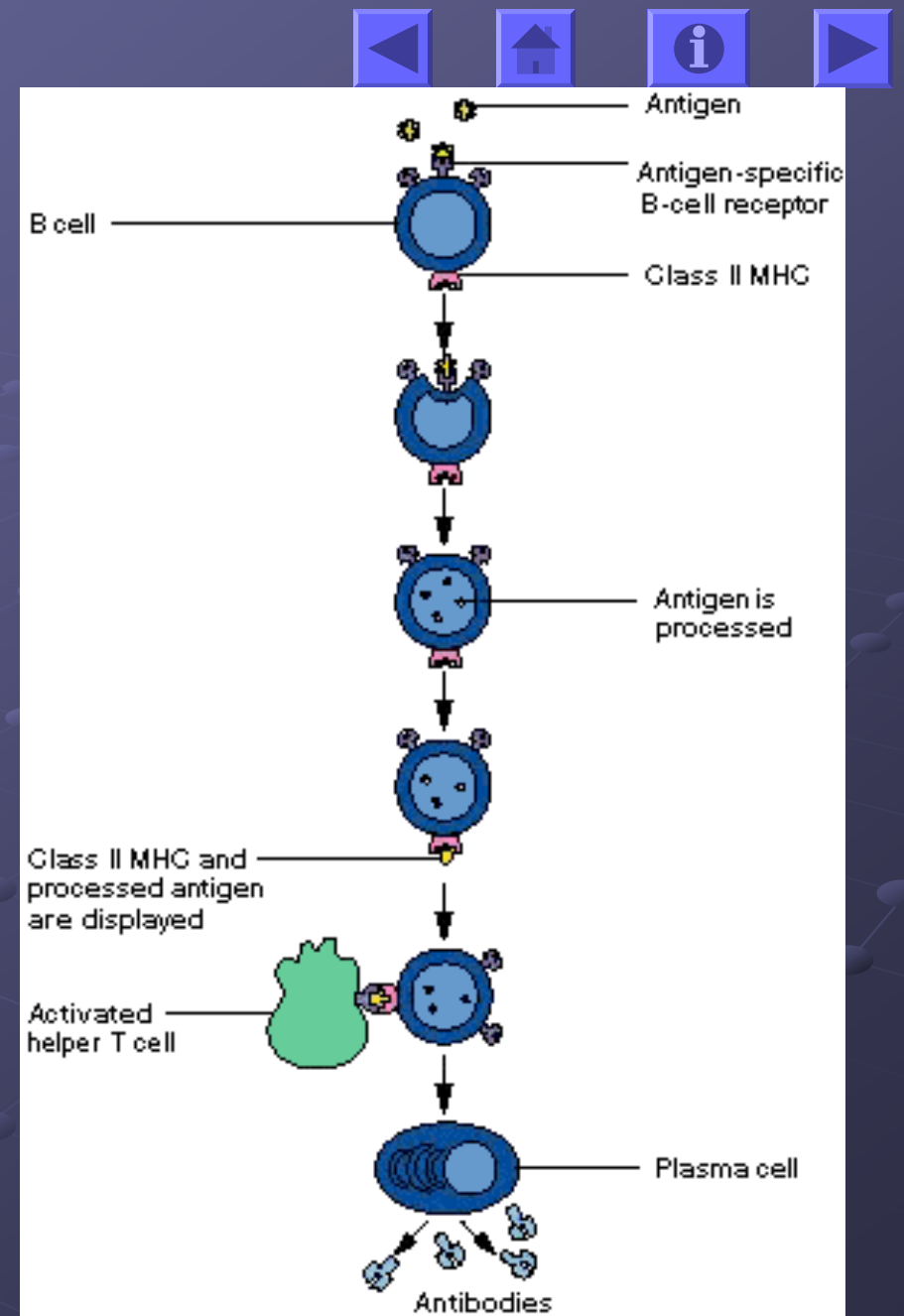
3. Macrophages digest the pathogen and T cells recognize antigens of the pathogen as an invader.

4. T cells bind to the antigens.

5. B cells bind to antigens and helper T cells

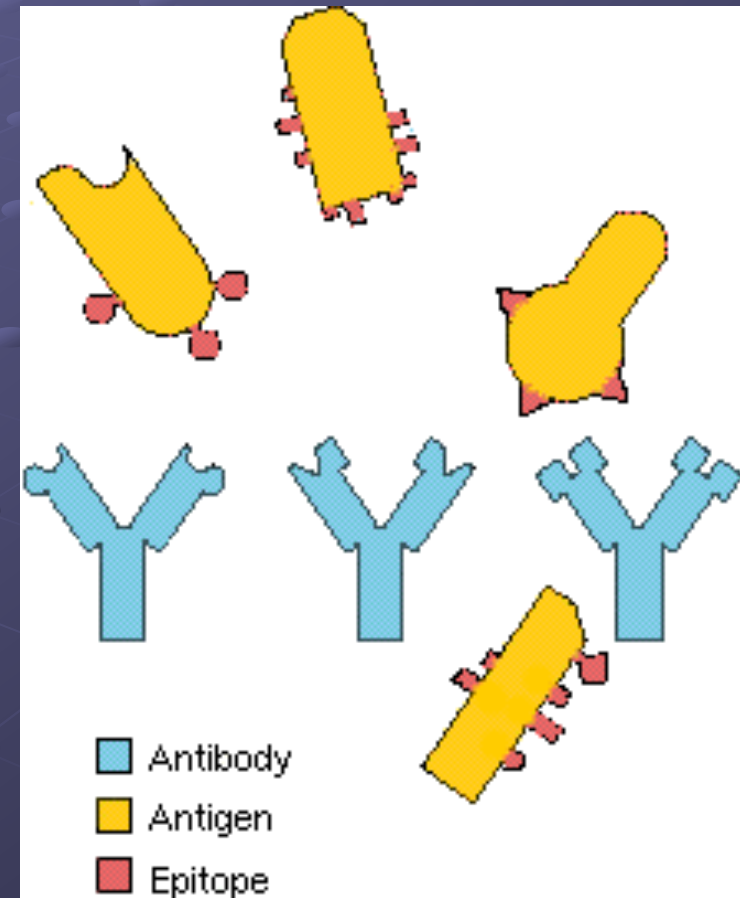
6. B cells divide to produce plasma cells.

7. Plasma cells release antibodies into the bloodstream.



8. Antibodies bind to antigens to help other cells identify and destroy the pathogens.

i.e. Antibodies produced by cells of the immune system recognize foreign antigens and mark them for destruction.

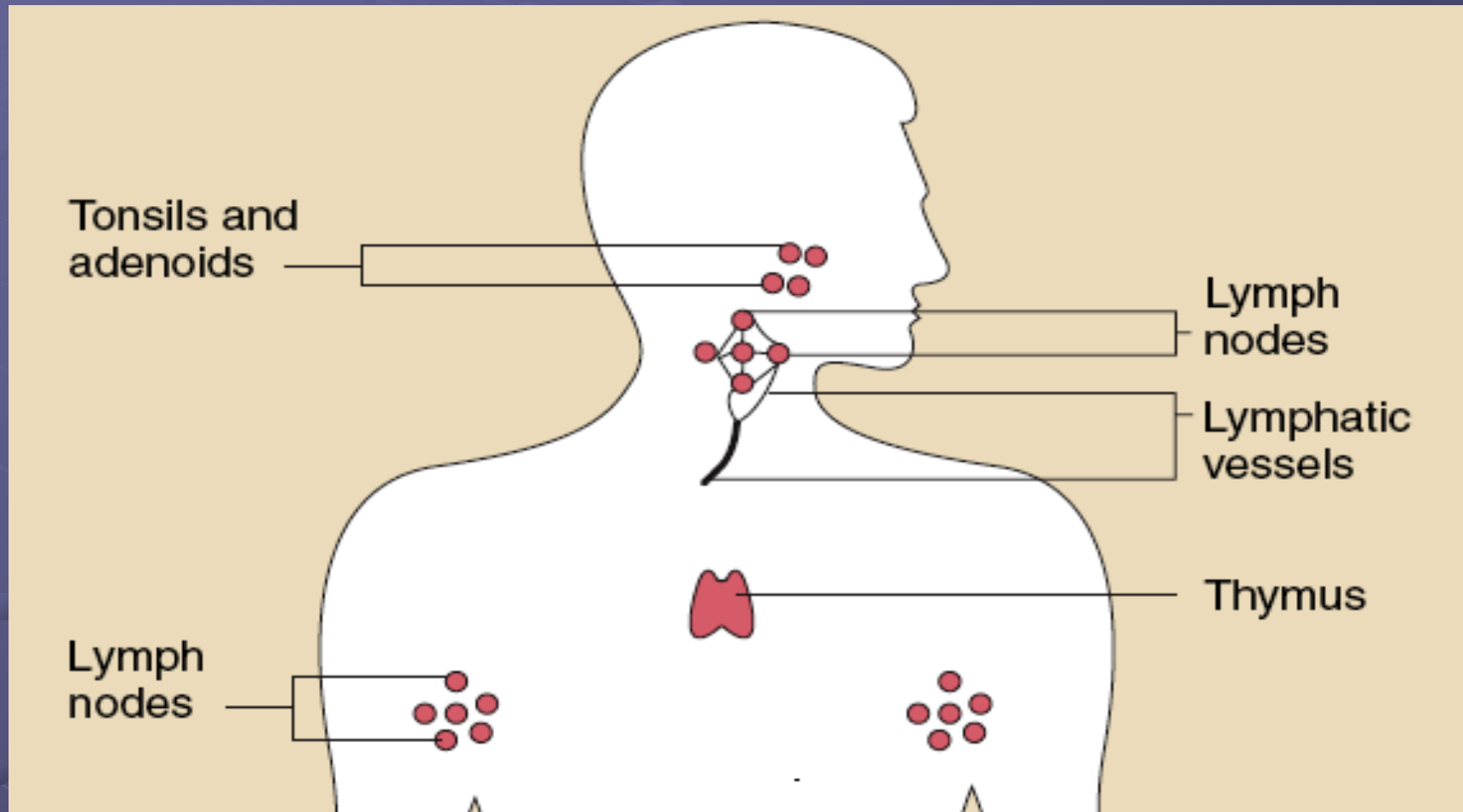


Immunity and the Lymphatic System

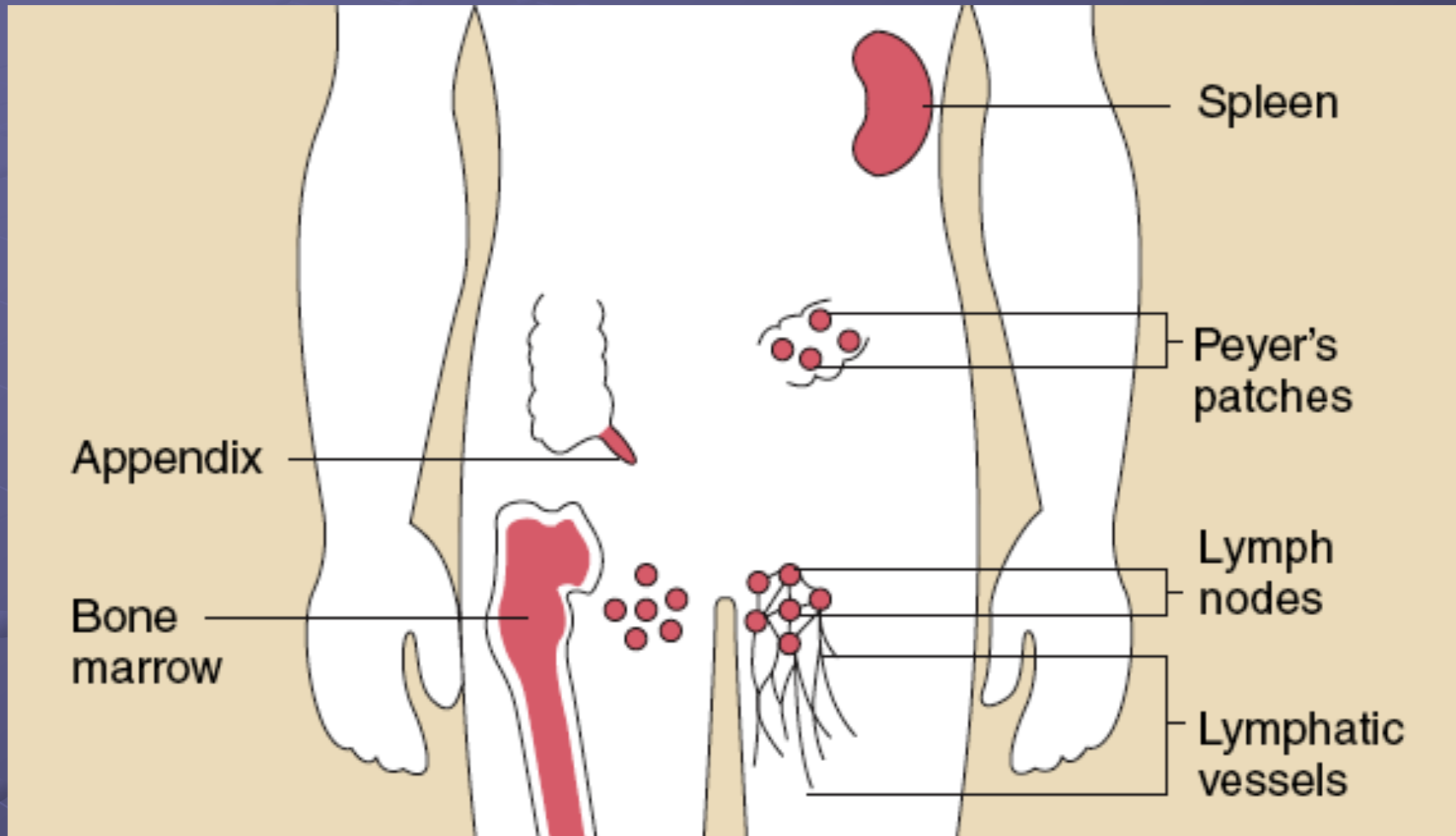


- The lymphatic system circulates antibodies to give you protection against many diseases. This protection can last throughout your life.

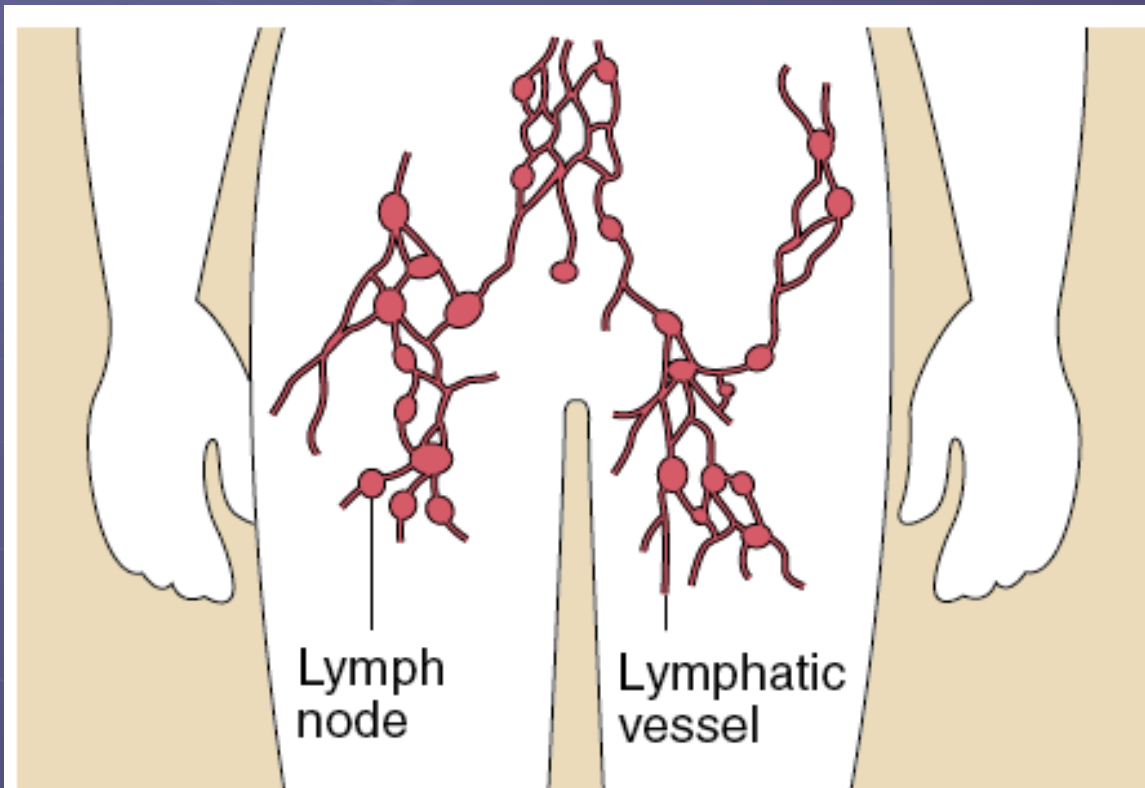
Lymph nodes



Lymph nodes



Lymphatic System



Immune cells and foreign particles enter the lymph nodes via incoming lymphatic vessels or the lymph nodes' tiny blood vessels.



Lymphocytes

- These white blood cells are produced by the lymph nodes. These nodes occur in groups and are concentrated in the head and neck, armpits, chest, abdomen, and groin.

Vocabulary

● phagocyte

- A white blood cell that attacks invading pathogens

● antigen

- A substance that is capable of triggering an immune response

● lymphocyte

- A specialized white blood cell that coordinates and performs many of the functions of specific immunity

● antibody

- A protein that acts against a specific antigen

● vaccine

- A preparation of dead or weakened pathogens that are introduced into the body to stimulate an immune response